

Agricultural Literacy for Missouri

“AGRICULTURE: UP, DOWN, AND ALL AROUND”

Aurora FFA Chapter
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Tin Can Treat
First through Third Grade Students
Fall 2002

Title:

Tin Can Treat

Target Audience Category

First Through Third Grade Students

List of Objectives

After the program the students will be able to:

1. **distinguish between liquids and solids**
2. **describe the importance of stabilizers**
3. **change a liquid dairy product into a solid**

Materials Needed:

- ✓ One cup of whole milk
- ✓ One cup whipping cream
- ✓ Egg substitute
- ✓ One cup sugar
- ✓ Teaspoon vanilla
- ✓ Coffee cans
- ✓ Duct tape
- ✓ Ice

Reference

A Guide to Food and Fiber Systems Literacy – pp 107 – 109

Show Me Standards Addressed

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|----------------------|--|
| ✓ Science Standard 1 | Properties and principles of matter and energy |
| ✓ Science Standard 2 | Properties and principles of force and motion |
| ✓ Science Standard 7 | Processes of scientific inquiry (formulating) |

Introduction:

Greet the students. Introduce yourself. Explain the reason you are there is to teach them about the world of agriculture. Agriculture is everywhere all around them. They need agriculture for their food, clothing and homes. Tell the students today you are going to look at a science experiment changing one of their favorite foods from a liquid to a solid.

Procedures:

Milk comes from cows that are milked on the farm twice daily. The milk is then taken from the farm, processed, packaged and sent to grocery stores and business like the school. Ask the students if they have ever seen anyone milking a cow or visited a dairy farm.

Now ask the students to list how many different products they can think of that can be made from milk. Make a list on the board also as they give them to you. Explain to the students some of the processes that milk goes through from the time it leaves the farm until they see it in products in the store. Explain to them milk is homogenized and then pasteurized for their health and safety. Explain homogenization and pasteurization. (Homogenize: Fats dispersed evenly throughout the milk to prevent separation). (Pasteurize: Heating and rapid cooling of milk to destroy unwanted organisms). Tell them today we are going to discuss the process of turning milk into ice cream. Ask the students what is their favorite way to eat ice cream (cone, milk shake or dish). Tell them the story of how the ice cream cone was introduced in the United States at the 1904 Worlds Fair. Freezing while stirring the milk, cream, sugar and stabilizer mixture turns the liquid into ice cream. The egg acts as a stabilizer and keeps the rest of the mix from separating as it is frozen. Using different fruit, additives or nuts then flavors ice cream. Ask the students what is their favorite flavor of ice cream. Show them some of the various toppings we brought and explain to them how they to relate to agriculture (fruit toppings and nuts).

Divide students into groups to prepare the mixtures to be used in the experiment. Each group needs to add:

- ✓ one cup of milk to their can,
- ✓ one cup of whipping cream.

Explain where cream comes from and why it is thicker than the milk they added.

- ✓ Add the egg substitute.

Explain that we won't be using raw eggs in this mixture since it won't be heated to kill bacteria that might harm them.

- ✓ add the sugar.

Ask how sugar is related to agriculture? Explain that it is a crop grown by producers in Hawaii just as we would grow corn or wheat in Missouri. After all the ingredients are added, place lids on the cans and tape each one so they are secure.

Tell students to place the smaller cans into the larger cans and pack ice around them. Then tape the lid onto the larger can. Students will need to begin to roll the cans back and forth for about ten minutes. After the first ten minutes, remove the outer can lid, drain the water and remove the smaller can. Open the mixture and stir it, scraping the sides. Return the small can to the large can, add more ice and rock salt and replace the lid. Continue to roll the can for another five minutes then open again. The mixture should be turned to ice cream, ready for them to sample

Conclusion:

Tell the student the ice cream should be hardened enough to eat. You hope you have been able to show them the importance of agriculture and how it makes the snacks they like and how by adding other agriculture products it makes it even better. Agriculture really is Up, Down and All Around, not just in their town or state but in other states and countries as well. Agriculture is everywhere you look and is an important part of everyday life. Thank the students and Ms. Smith for the opportunity to teach them about agriculture and for being such good listeners. . Hand out the dairy picture (attached in appendix) for the students to color.